

Title (en)

Process for forming an active area and a shallow trench isolation self-aligned to a deep trench

Title (de)

Herstellungsverfahren für ein aktives Gebiet und eine flache Grabenisolation selbstjustiert zu einem tiefen Graben

Title (fr)

Procédé pour former une région active et une isolation à tranchée peu profonde auto-alignées à une tranchée profonde

Publication

EP 1037281 A1 20000920 (EN)

Application

EP 00103964 A 20000225

Priority

US 27112499 A 19990317

Abstract (en)

A semiconductor device including a substrate. At least one pair of deep trenches is arranged in the substrate. A collar lines at least a portion of a wall of each deep trench. A deep trench fill fills each deep trench. A buried strap extends completely across each deep trench over each deep trench fill and each collar. An isolation region is arranged between the deep trenches. A dielectric region overlies each buried strap in each deep trench.
<IMAGE>

IPC 1-7

H01L 27/108; **H01L 21/8242**

IPC 8 full level

H01L 27/108 (2006.01); **H01L 21/8242** (2006.01)

CPC (source: EP KR US)

H01L 21/76 (2013.01 - KR); **H10B 12/0385** (2023.02 - EP US); **H10B 12/0383** (2023.02 - EP US)

Citation (applicant)

- EP 0715350 A2 19960605 - TOSHIBA KK [JP]
- US 5874758 A 19990223 - DEBROSSE JOHN K [US]
- PATENT ABSTRACTS OF JAPAN, vol. 1999, no. 8, 30 June 1999 (1999-06-30)

Citation (search report)

- [X] EP 0715350 A2 19960605 - TOSHIBA KK [JP]
- [A] US 5874758 A 19990223 - DEBROSSE JOHN K [US]
- [A] US 5360758 A 19941101 - BRONNER GARY B [US], et al
- [A] EP 0764981 A2 19970326 - SIEMENS AG [DE], et al
- [A] PATENT ABSTRACTS OF JAPAN vol. 1999, no. 08 30 June 1999 (1999-06-30) & US 5909044 A 19990601 - CHAKRAVARTI ASHIMA BHATTACHARY [US], et al

Cited by

DE10152549A1; WO0120643A3

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